Student Name:	Date:
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PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION Career Cluster: Agriculture, Food and Natural Resources

Program Name: Agriculture, General CIP: 010000

Effective 9/2015

National Standard: National Career Clusters

Competencies (statement that provides the overview and defines the instructional area) Student will:	Knowledge, Content and Skills (what a student needs to know and be able to do and upon which they will be assessed) http://www.education.nh.gov/career/career/aaoi.htm http://www.careertech.org/career-ready-practices Student will:	NH Common Core State Standards – Aligned • English/Language Arts/Literacy: E • Mathematics: M	Rating Scale -Sample Performance Assessments (Performance tasks the student needs to demonstrate in order to be rated proficient in meeting the competency)
Understand the importance of human interrelations with natural resources in order to conduct management activities in natural habitats.	1. Identify natural resources and how to sustain them.	ELA: 2, 3, 6, 7, 9 MATH: 2, 6, 9, 17	Tor Example: You are collaborating with the NH Dept. of Fish and Game through the Trout in the Classroom program. In this capacity, you need to: Evaluate potential release sites in terms of ecosystem characteristics Identify human impact on these sites Determine appropriateness of habitat for this purpose Develop and implement a plan for the release of trout Prepare a report on progress & success of operation to NH Fisheries, and NH F & G. Cont. to #5
	2. Identify organizations and agencies involved in resource management (non-profit, UNH Coop., NRCS, etc.)		Tor Example:
	Identify impacts by humans on natural resources: what are the benefits and negatives of our footprint. CRP: Consider the environmental, social and economic impacts of decisions		1 2 3 4 For Example:
	4. Describe ecosystem relationships (soil structure, plant and animal habitat, <i>etc.</i>)		1 2 3 4 For Example:
	Create a habitat management plan. CRP: Demonstrate creativity and innovation		

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Student will:	Student will:		
Understand the concepts of plant nutrition and its effect on plant growth and development	6. Identify function of plant nutrients.	ELA: 2, 3, 4, 6, 8, 9 MATH:1, 6, 8, 15,	Tor Example: You are a grower for Pleasant View Gardens - a large wholesale greenhouse operation. You are asked by the owner to develop a fertilization plan sufficient for finishing a particular crop at a wholesale market within an appropriate time. This plan will include irrigation and shading recommendations and justification for these decisions. Present this plan to the owner. Cont. to # 9
	7. Describe nutrient sources and determine plant nutrient requirements for optimum growth.		1 2 3 4 For Example:
	8. Develop nutrient application plans that maximize production and profit.		1 2 3 4 For Example:
	9. Describe nutrient application methods and appropriate safety practices. AAI 8. Health, Safety, and Environment: CRP: Attend to personal health and financial well-being.		1 2 3 4 For Example:
Understand the management of media for optimal plant growth and production.	10. Identify soil characteristics and biology that contribute to the structure of soil.		Tor Example: Your community has been given a plot of land. The Selectmen have asked for help to develop a land use plan for this space. Utilizing a topography evaluate the soil characteristics, permeability and structure. Based on this evaluation, develop a land use plan that considers all of these factors. You will present your plan to the selectmen. Cont. to #12

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Competencies	Knowledge, Content and Skills	NH Common Core State	Rating Scale -Sample Performance Assessments
(statement that provides the	(what a student needs to know and be able to do	Standards – Aligned	(Performance tasks the student needs to demonstrate in order to be rated
overview and defines the	and upon which they will be assessed)		proficient in meeting the competency)
instructional area)	http://www.education.nh.gov/career/career/aaoi.htm	English/Language	
	http://www.careertech.org/career-ready-practices	Arts/Literacy: E • Mathematics: M	
Student will:	Student will:		
	11. Identify soil characteristics and biology	ELA: 3, 6, 7, 8, 9	1 2 3 4
	that contribute to the structure of soil.	MATH: 2, 6, 12,	For Example
	12. Evaluate media permeability and water-		1 2 3 4
	holding capacity.		For Example:
Understand plant	13. Describe the role of genetics in plant	ELA: 2, 3, 4, 6, 7, 9	1 2 3 4
reproduction in order to	propagation.	MATH: 1, 6, 8, 16	For Example:
propagate successfully.			You have been hired to design an interior plant scape for your school
			district's central office. It should have both ongoing and seasonal
			components, as per client request. Create a list of plant species that will
			thrive in this environment and propagate the plants using defined
			research methods. Include plans for sexually propagated species for
			seasonal impact.
			and/or
			You own a flower shop and want to create a cutting garden so that you
			can save some money on the purchase of cut flowers. Select varieties
			appropriate for this purpose and identify the most effective means of
			propagating these plants. Determine the likelihood of success rates to
			calculate cost implications.
			Cont. to #16
	14. Describe the components and functions		1 2 3 4
	of plant reproductive structures.		
	of plant reproductive structures.		For Example:
	15. Identify and practice methods of asexual		1 2 3 4
	and sexual plant propagation.		For Example:
	16. Classify plants according to use, and		1 2 3 4
	environmental sustainability		For Example:

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Student will: Understand management of greenhouse systems required for healthy plants and profitable business operations.	Student will: 17. Identify and select seeds and plants for crop production.	ELA:2, 4, 6, 7, 9 MATH: 1, 8, 9, 17	To Example: You are in charge of your FFA plant sale and need to achieve a target sales goal. Create a list and flow chart of species that you will grow for this purpose. Produce a culture sheet for each crop that can be followed by other members who will be working in the greenhouse. Supervise and monitor the work of other members in maintaining these crops. Cont. to #19
	Manipulate and evaluate environmental conditions (e.g., irrigation, shading) to facilitate germination, growth, and development. Evaluate and demonstrate transplanting practices.		1 2 3 4 For Example: 1 2 3 4 For Example:
Understand power generation in order to choose the most appropriate and environmentally sound sources.	20. Identify petroleum sources and alternative energy sources (e.g., ethanol, biodiesel, air, and wood, geothermal, solar) and appropriate application. 21. Compare environmental impact of energy	ELA: 2, 3,6, 8, 9 MATH: 1, 6, 8, 17	The Topsfield community director has asked your company to determine alternative energy sources for a community greenhouse that are cost effective. You will compare different sources and their environmental and financial impact in your written plan. Cont. to #21
	sources.		For Example:

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Student will:	Student will:	Mathematics: M	
Understand service	22. Describe various lubricates specific to a	ELA: 2, 4, 6, 7, 9	1 2 3 4
schedules to insure	machine.	MATH: 2	For Example:
longevity and safe			The Facilities Department in your district has asked you to create and
operation of all equipment, machinery			implement a maintenance plan for the district's equipment. This plan is to become a resource for the members of the facilities team. It will
and systems.			include maintenance of all equipment systems, recommendations for
and systems.			replacement parts and fluids and maintenance schedules. Produce a
			manual for this purpose. Cont. to # 30
	23. Describe properties of lubricants.		1 2 3 4
	24. Evaluate_presence and function of safety		For Example: 1 2 3 4
	systems.		For Example:
	25. Identify the components and functions of the electrical systems.		1 2 3 4 For Example:
	26. Troubleshoot and maintain electrical		1 2 3 4
	systems.		For Example:
	CRP : Utilize critical thinking to make sense of problems and persevere in solving them		
	27. Perform equipment adjustments (e.g., belts, drive chains).		1 2 3 4 For Example:
	28. Demonstrate the ability to follow manufacturer's specifications for equipment maintenance.		1 2 3 4 For Example:

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Student will:	29. Determine the effect of cleanliness and		
	appearance on longevity and operation of equipment.		For Example:
	30. Demonstrate skills in maintaining fluid conveyance components (e.g., hoses, lines, valves, nozzles).		1 2 3 4 For Example:
Understand equipment operation for successful	31. Describe function of machine controls and instrumentation.	ELA :2, 6, 7, 8, 9 MATH: 12	1 2 3 4 For Example:
production and provide a safe work			You have been asked by your supervisor to develop and conduct a workshop on safe equipment operation and present a preventative
environment.			maintenance schedule to maintain manufacturing equipment, tools and workstations.
	22. D. C		Cont. to #35
	32. Perform pre-operation inspection.		1 2 3 4 For Example:
	33. Perform appropriate start-up procedures.		1 2 3 4 For Example:
	34. Select proper equipment for specific tasks.		1 2 3 4 For Example:
	35. Evaluate and demonstrate safety skills in operating equipment.		1 2 3 4 For Example:

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Student will:	Student will:		
Understand	36. Demonstrate and apply proper use of		
construction and	measurement and layout tools in		For Example:
fabrication that are critical to facilities.	construction/fabrication of an actual project.		As a first year technician your supervisor has asked you to develop a method for assessing durability, performance, and possible obsolescence as materials vary in quality. You will present your report to your supervisor. Cont. to # 37
	37. Demonstrate safe and proper use and maintenance of hand and power tools in construction/fabrication.		1 2 3 4 For Example:
	38. Interpret technical documents to construct and fabricate an actual project AAI 4. Technical and production skills		1 2 3 4 For Example: The community development committee has hired your team to review
	CRP: Apply appropriate academic & technical skills		the plan /technical documents (drawings, construction plans, specifications) for their main street project. You will present an oral report to the committee and provide a timeline for the delivery of services for the project.
Understand management principles and how that affects ecosystems.	39. Identify and locate resources to assist in designing a management plan. CRP: Communicate clearly, effectively and with reason.	ELA: 2, 4, 6, 9 MATH: 12, 16	To Example: You have been hired to create a forest management plan for your town forest. You need to include stand inventory, harvest potential, timber stand improvement, forest disorders and wildlife considerations. Provide information on potential hazards for that location. Cont. to #43
	40. Describe the relationship of harvest levels to long-term availability of resources.		1 2 3 4 For Example:
	41. Demonstrate timber stand improvement techniques.		1 2 3 4 For Example:

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Competencies	Knowledge, Content and Skills	NH Common Core State	Rating Scale -Sample Performance Assessments
(statement that provides the	(what a student needs to know and be able to do	Standards - Aligned	(Performance tasks the student needs to demonstrate in order to be rated
overview and defines the	and upon which they will be assessed)	English/Language	proficient in meeting the competency)
instructional area)	http://www.education.nh.gov/career/career/aaoi.htm http://www.careertech.org/career-ready-practices	Arts/Literacy: E	
	nttp://www.careertech.org/career-ready-practices	Mathematics: M	
Student will:	Student will:		
	42. Demonstrate wildlife habitat		1 2 3 4
	enhancement techniques.		For Example:
	CRP: Use technology to enhance		1
	productivity.		
	productivity.		
	43. Recognize hazardous situations at the		1 2 3 4
	work location.		For Example:
	AAI 8. Health, Safety, and Environment		1
Understand offerting	-	ELA.C 7.9.0	
Understand effective	44. Identify public use areas to explain	ELA:6, 7, 8, 9	
venues to communicate	natural resources and lead a group habitat	MATH: 2	For Example:
natural phenomena to	conservation project or a group hike to		You are hired to design an educational nature walk for elementary school
the public.	interpret a natural area.		children. You will present your design to the parents, teachers and school
	CRP: Employ valid and reliable research		board.
	strategies.		
	CRP: Model integrity, ethical leadership and		
	effective management		
Understand and apply	45. Identify tree species and other woody	ELA:2, 4, 6, 8, 9	1 2 3 4
scientific principles to	vegetation.	MATH: 9	For Example:
natural resource	vegetation.	WIATTI. 9	1
			You are hired to create an arboretum on your campus. You are asked to
management activities.			label all species and design a brochure that educates about them, and the
			environmental factors that impact plant choice, location, and growth rate.
			Highlight evidence of succession on the campus and identify potential
			threats to these specimens. Cont. to #51
	46. Describe the hydrologic, nitrogen, carbon		1 2 3 4
	cycles.		For Example:
	47. Describe succession.		1 2 3 4
			For Example:
I			

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Student will:	Student will:		
	48. Identify potential pollution sources.		
	AAI 7. Community issues		For Example:
	CRP: Consider environmental, social & economic impact of decisions		
	49. Define watershed boundaries.		1 2 3 4 For Example:
	50. Describe the influence of weather and climatic factors.		1 2 3 4 For Example:
Understand and employ knowledge of natural resource industries to describe production, practices and processing procedures	51. Describe and demonstrate forest and wildlife harvest techniques and procedures. AAI 4. Technical and Production Skills AAI 5. Underlying Principles of Technology		1 2 3 4 For Example:
Understand and practice responsible conduct to protect natural resources that are critical to maintaining a healthy environment.	52. Demonstrate individual fire prevention precautions while working in natural resources. CRP: Apply appropriate academic and technical skills		Tor Example: You have been assigned by your supervisor to develop site-specific scenarios for potential weather events linked to climate change and redesign fire management strategies to make room for rapid response to these events.
	53. Demonstrate best management practices for erosion control and stabilization. CRP: Utilize critical thinking to make sense of problems and persevere in solving them		For Example: As landowner, you have contacted UNH cooperative extension to assist in determining the need and extent of erosion control measures to be taken in timber harvesting your land. The consultant will assist you in developing a plan.

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	disease and methods of prevention. 55. Identify observable diseases/insects impacting plants and animals and describe how to report observances of disease		For Example: Your supervisor has asked you to update the fact sheet guide on insects/pests and diseases for the farmers community event. Cont. to #55 1 2 3 4 For Example:
Understand the fundamental concepts of entrepreneurship and how entrepreneurship influences the economy.	infestations. 56. Discuss and identify the skills and behaviors of being a business owner /entrepreneur (passion, confidence, self-motivation, persistence, leadership, management, etc.) AAI 9. Personal Work Habits CRP: Attend to personal health and financial well-being CRP: At as a responsible and contributing citizen and employee	ELA: 3, 6, 8, 9 MATH: 2, 8, 10, 16, 19	The representative will review your draft business plan and assess if you have what it takes to run your own small business. http://www.bdc.ca/EN/articles-tools/entrepreneur-toolkit/business-assessments/Pages/self-assessment-test-your-entrepreneurial-potential.aspx Cont. to #59
	57. Discuss business possibilities and identify the steps in planning a business AAI 1: Planning AAI 2: Management AAI 3: Finance 58. Identify the resources needed for a business start-up and operation.		1 2 3 4 For Example: 1 2 3 4 For Example:

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Student will:	Student will:		
	59. Discuss and develop a rudimentary		
	business plan.		For Example:
	AAI 6: Labor Issues		
	AAI 7: Community Issues		
Understand the	60. Demonstrate personal growth,	ELA: 4, 6, 7, 8, 9	1 2 3 4
necessary employability	community leadership, democratic principles	MATH: 5, 16	For Example:
and career ready skills	and social responsibility by participating in		Your instructor has assigned your team to partner with a community
in order to achieve	activities/events offered through student and		organization to carry out a community service project. You must prepare
success in today's	professional organizations.		a thorough plan including resources required (both human and financial)
workplace.	CRP: Work productively in teams while using cultural/global awareness		and expected outcomes. You will present the project to the community board for approval.
	CRP: Plan education and career path aligned to personal goals		